Operational Waste Management Plan

Proposed Residential Build-to-Rent Development

At 10 – 16 Campbell Street, Bowen Hills

On Behalf of Construction Forestry Mining & Energy Industrial Union of Employees QLD State Construction & General Division

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Revision Record

Issue No.	Author	Reviewed/Approved	Development Stage / Revision Description	Date
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1 Introduction

1.1. Background

Colliers International Engineering and Design (TTMC) has been engaged by the Construction Forestry Mining & Energy Industrial Union of Employees QLD State Construction & General Division to prepare an Operational Waste Management Plan (OWMP) to support the proposed residential Build-to-Rent development located at 10 – 16 Campbell Street, Bowen Hills. It is understood that a development application will be lodged with Economic Development Queensland (EDQ).

1.2. Client Brief and Scope

As a Build-to-Rent (BtR) development, the waste management strategy and equipment is intended to be easy to use, robust and utilitarian to ensure the ease of ongoing maintenance and replacement. The proposed development seeks to address regulatory assessment benchmarks in providing a deemed to satisfy waste management strategy while meeting specific BtR requirements.

The content of this OWMP is intended to provide information on the typical movement of waste streams from generation to collection.

The items covered within the OWMP are described in Table 1.1.

Table 1.1: Scope Items

Item	Description
Refuse streams	Identification of refuse streams & anticipated development refuse volumes likely to be produced
Refuse separation	Recommendations for appropriate segregation methods for each refuse stream
Refuse collections	Assessment of refuse collection vehicle (RCV) access and manoeuvring
Refuse storage	Detailed analysis of refuse storage facilities and design
Refuse transfer	Assessment of refuse transfer between refuse storage and collections areas
Refuse disposal	Recommendations for refuse disposal within the development
Refuse management equipment	Identification of recommended and optional refuse management systems and equipment
Refuse management operations	Recommendations for operational efficiency and ongoing management, including refuse minimisation, tenant education and safety
Building design	Recommendations for design of refuse management facilities

Detailed information including site plans and drawings, recommended refuse management equipment and system specifications, common refuse signage as well as a list of terms and abbreviations are provided in the appendices.

The recommendations in this report relate to the operational phase of the development only. Additional requirements for refuse management during or after demolition or construction phases are not included and require a dedicated plan.

1.3. Site Analysis

The site is located at 10 – 16 Campbell Street, Bowen Hills and is formally described as Lot 1 on RP144614 and Lot 3, Lot 4 and Lot 5 on RP10074 as depicted in Figure 1.1.

The site has road frontages on Campbell Street, Hurworth Street and a local road with all vehicular access occurring via the local road frontage. Campbell Street is recognised as a suburban road and the local road is accessed via Hurworth Street recognised as a neighbourhood road on BCC's road hierarchy.

The site is located within the Bowen Hills Priority Development Area (PDA), with the overarching area defined as an Emerging Community. The site falls within the Mixed-Use Zone within the Bowen Hills PDA.

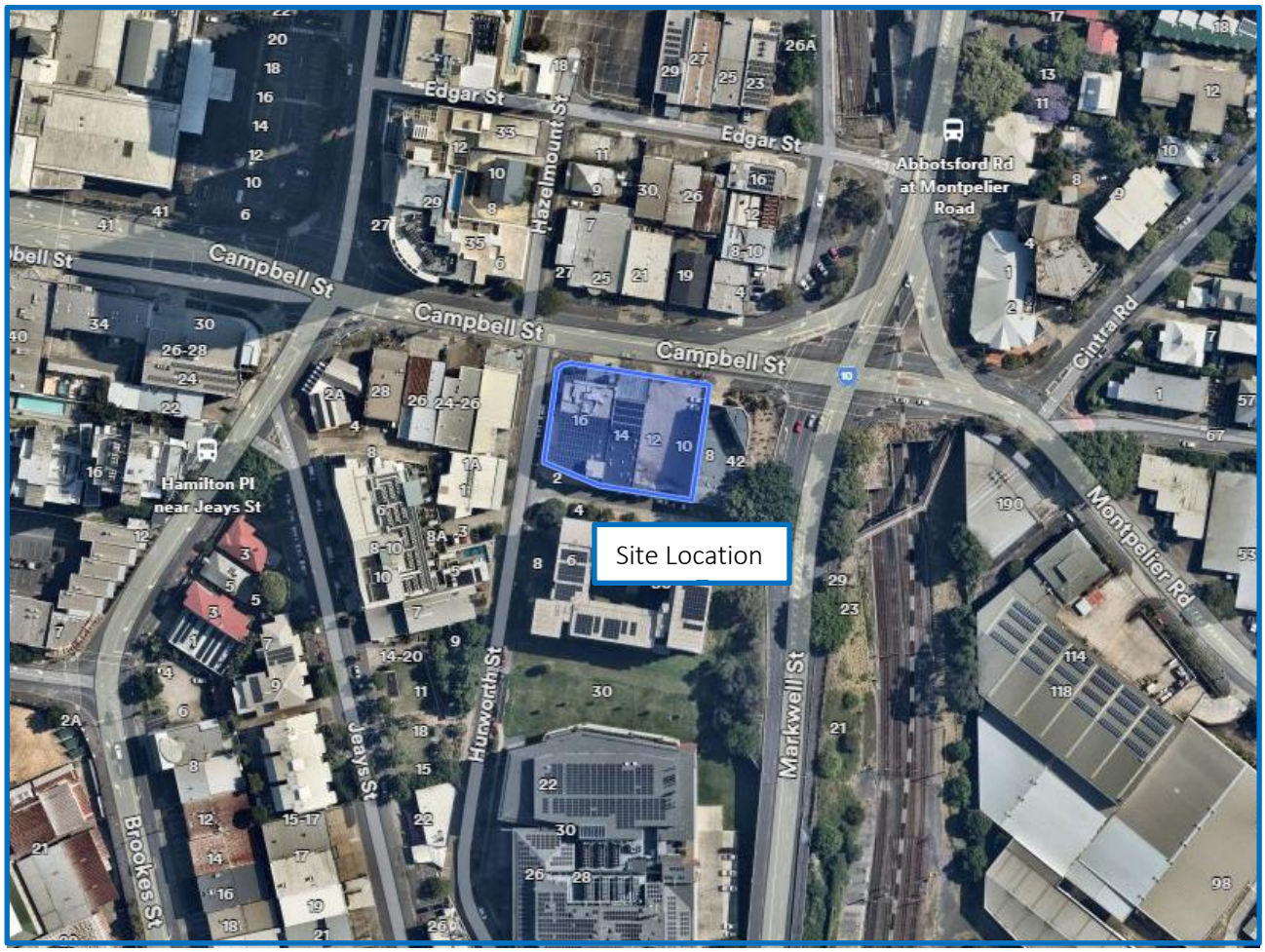

Figure 1.1: Site Location
Source: Nearmap, Image Dated 20/09/2024

1.4. Site Statistics

The proposed development consists of a single residential tower comprising basement and podium car and bike parking, with ancillary common areas and residential apartments above from levels 4 (podium deck) - 26.

Figure 1.2 provides a summary of the development as context for the volume information provided in Section 2.

	2 Bed	1 Bed + MPR	1 Bed	Studio	Total
LMR		Roof Terrace and BTR Communal and Services			
Roof Deck		BTR Communal and Services			
Lower Roof					
Level 26	4	5	1	3	13
Level 25	4	5	1	3	13
Level 24	4	4	2	3	13
Level 23	4	5	1	3	13
Level 22	4	5	1	3	13
Level 21	4	5	1	3	13
Level 20	4	4	2	3	13
Level 19	4	5	1	3	13
Level 18	4	5	1	3	13
Level 17	4	5	1	3	13
Level 16	4	4	2	3	13
Level 15	4	5	1	3	13
Level 14	4	5	1	3	13
Level 13	4	5	1	3	13
Level 12	4	4	2	3	13
Level 11	4	5	1	3	13
Level 10	4	5	1	3	13
Level 9	4	5	1	3	13
Level 8	4	4	2	3	13
Level 7	4	5	1	3	13
Level 6	4	5	1	3	13
Level 5	4	5	1	3	13
Podium Deck	3	4	1	3	11
Podium Level 3		Carpark and BTR Communal			
Podium Level 2		Carpark and BTR Communal			
Podium Level 1		Carpark and BTR Communal			
Mezzanine		Services and BTR Communal			
Ground		BTR Communal			
Lower Ground		Carpark and BTR Communal			
Sub Total	91	109	28	69	297
	30.64%	36.70%	9.43%	23.23%	100%

Figure 1.2: Development Summary
Source: Nettletontribe, Project: 10-16 Campbell Street Bowen Hills, Drawing: Design Report, Rev: H

2 Regulatory Refuse Management Requirements

This section provides the detailed refuse calculations and describes the arrangements for the collection, storage, transfer and disposal of refuse within the development as deemed to satisfy council's current assessment benchmarks. This includes associated bin quantities, storage capacities, equipment details, collection frequencies and site access details.

2.1. Regulatory and Governance Considerations

2.1.1. State Government Development Scheme

This plan has been prepared to align with the refuse requirements of the Bowen Hills PDA Development Scheme No.3. Colliers has referred to the requirements of Section 2.5.4.6 and Schedule 3 as these sections outline the waste management controls for all development within the PDA.

Whilst the application will be submitted to EDQ as a Development Application, it is noted that the site is located within the Brisbane City Council local government area. As such, where relevant this development has been designed to align with the respective provisions of the Brisbane City Council City Plan 2014 as outlined in Section 2.1.2.

Table 2.1 details the refuse management items addressed to align with the Bowen Hills PDA Development Scheme No.3.

Table 2.1: OWMP Development Scheme Checklist

Bowen Hills PDA Development Scheme No.3		
Item	Requirement	Compliance / Comment
Section 2.5.4.6 – Waste Management		
Development:		
(i)	provides facilities for recycling, composting and waste reduction, in addition to the provision of facilities for the removal of waste. Where possible, waste management facilities are centrally located on the site, and	Complies – Details throughout this OWMP.
(ii)	ensures that no liquid or solid wastes, other than stormwater, are discharged to neighbouring land or waters to prevent contamination of natural waterways.	Complies – Sewer connected drainage points in the refuse storage area.

2.1.2. Council's Refuse Planning Scheme

As a referral agency for EDQ, this plan has been prepared to align with Brisbane City Council's (BCC) refuse requirements of SC6.26 Refuse Planning Scheme Policy (PSP) v31. Additionally, AO32 / PO32 of the Multiple dwelling code and AO8.1, AO8.2 / PO8 of the Infrastructure design code.

As BtR developments are considered residential use sites, Colliers has referred to BCC's requirements as outlined in the Refuse PSP under section 2, 3 and 4. These sections relate to the general requirements for all uses and specific controls for non-residential uses. Specific design details addressed to achieve compliance with BCC's Refuse PSP requirements is located in *Appendix A.*

2.1. Prescribed Refuse Volumes

The refuse volumes utilised for the calculation of residential refuse storage area are based on BCC's standard rated entitlement. The entitlement is unchanged from the freestanding dwelling rate regardless of dwelling size. The rated entitlement applied to refuse calculations below is a requirement for development consent and not reflective of actual refuse generation.

A residential collection frequency of 3 times per week has been established for both general waste and commingled recycling in line with BCC's 'Residential (on-site bulk) service frequency and compaction requirement' guidelines.

Table 2.2: Refuse Generation Rates

Generation Rate	Measure	General Waste	Commingled Recycling
Residential	L / Unit / Week	240	240

Table 2.3: Refuse Calculations

Area Description	Measure	Quantity	General Waste L/Week	Commingle Recycling L/Week
Residential Apartments	Unit	297	71,280	71,280
Total Weekly Volumes Compacted (L / Week)			23,760*	N/A
Volumes per Day (L / Day)			3,394*	10,183
Volumes per Collection (L / Collection)			7,920*	23,760
Collection and Equipment Details	Collections per Week		3	3
	Storage Capacity		3 Days	3 Days
	Equipment Size		1,100L	1,100L
	Equipment Quantity Required		7.20	21.60
	Equipment Quantity Provided		7 + 1	22 + 1

*Compaction ratio of 3:1 used for calculation purposes

2.2. Refuse Bin, Equipment Requirements and Specification

Table 2.4 and Table 2.5 outlines the number of bins and additional equipment required based on the generation calculations above.

As refuse volumes may vary from assessment benchmarks, bin numbers and sizes may need to be altered to suit the building operation. The tables show the maximum number of bins and equipment expected.

Table 2.4: Bin Requirements

Refuse Stream	Bin / Storage – Size or Type	Number Required
General Waste	1,100L	7 + 1 to remain beneath chute during servicing
Commingled Recycling	1,100L	22 + 1 to remain beneath chute during servicing

Table 2.5: Additional Equipment

Description	Quantity	Capability / Specification
Dual Refuse Chute	1	Co-located refuse chutes provide disposal points for general waste and commingled recycling. Access points located on each habitable residential level. Design includes an 800mm chute diameter for commingled recycling application.
Integrated Chute Discharge Compactor	1	For use with general waste only. If required, will achieve an average compaction ratio of 3:1. *Elephant's Foot Ceiling Mounted Chute Compactor used for architectural design purposes. Model with equivalent capabilities may be installed.*
3-Bin 1100L Linear Bin Rotation System	2 (1 per refuse stream)	Automates bin rotation beneath the chute discharge for general waste and commingled recycling. Reduces the overall level of building management intervention required. *Elephant's Foot 3 Bin Conveyor used for architectural design purposes. Model with equivalent capabilities may be installed.*
Refuse / Cleaner Trolleys	Optional	May be supplied to assist residents in transfer of refuse to the refuse room or from communal areas.
Battery Recycling Receptacle	1 (Optional & Recommended)	To be provided in the refuse room or main lobby for the capture of mixed batteries for recycling to ensure separation from waste stream.

2.3. Refuse Disposal

The tables in this section summarise general recommended disposal arrangements for frequently generated and infrequently generated refuse for each development component. Section 2.3.1 describes the frequently generated refuse streams that are generated in high volumes for any given period and require significant capacity for storage prior to collections. Section 2.3.2 describes the infrequently generated refuse streams that are generated in relatively low volumes, and where minimal provision for storage can be easily managed by collection frequency and ad hoc storage arrangements.

2.3.1. Frequently Generated Refuse

Table 2.6: Disposal of Frequently Generated Waste

Refuse Stream	Disposal Details
WASTE	
General Waste	Space for bins to store one day's worth of generated refuse will be provided in each residential apartment. Each day or as required, general waste will be transferred by residents to the chute access hoppers on each habitable residential level. The refuse chute will discharge directly into the bulk bin stored in the chute discharge room. The chute hopper doors will be colour-coded for easy identification and to support the separation of refuse streams. Instructions on the use of the chute system and accepted items in each stream will be required to be included in the resident apartment manual. Waste bins should always be lined with bags and the bags tied before removal. Operationally, bins used for general waste should limited to 40L or less and not exceed the dimensions of the chute hoppers. Bins are typically positioned in a cupboard beneath the kitchen sink. Waste bins should be accompanied by a commingled recycling bin in order to facilitate separation of general waste and recycling. Receptacles will be placed in all communal areas where refuse will be generated such as the roof terrace for collection and storage of at least one day of general waste. Bin quantities will be determined during the operational phase. A recycle bin will be positioned wherever a general waste bin is positioned to maximise recovery. Building management will assist with disposal of all refuse generated in communal areas.
Organic (Food) Waste	Separating organic or food waste from general waste is recommended to reduce the total amount of general waste produced. Separation may be considered and begin at any stage during the operational phase of the development. While BCC does not currently offer a food organics collection service to multiple unit dwellings, commercial options are available at additional cost. Alternatively, domestic compositing equipment may be used for individual units or communally. Communal composting must be facilitated and managed by a building manager or caretaker to ensure correct usage. Where food waste is separated, caddy bins or bins less than 20L should be used in residential kitchens, for disposal of food waste. The bins are then transferred to the refuse room for collection. The content is then decanted in bulk bins or composting equipment provided. Transfer and collection should occur on a frequent basis to minimise odour amenity issues.

Table 2.7: Disposal of Frequently Generated Recyclables

Refuse Stream	Disposal Details
RECYCLING	
Commingled, including • glass • aluminum • steel cans • tins • cardboard • semi rigid plastics	Items for recycling must not be bagged and disposed in loose form. This can be done by decanting the materials from the individual receptacles into the recycling chute. The refuse chute will discharge directly into the appropriate bulk bin stored in the chute discharge room. The chute hopper doors will be colour-coded for easy identification and to support the separation of refuse streams. Instructions on the use of the chute system and accepted items in each stream will be required to be included in the resident apartment manual. Residents will access the refuse storage room directly for disposal of all oversized recyclable materials, lifts will be utilised for vertical transfer. Receptacles will be placed in all communal areas where refuse will be generated for collection and storage of at least one day of commingled recycling. Bin quantities will be determined during the operational phase. Building management will assist with disposal of all refuse generated in communal areas.
	Container deposit / refund schemes are currently in place in Queensland. Various models exist including bottle return facilities and (automated) reverse vending machines. Occupants should be encouraged to separate containers that qualify for the schemes from the waste or recycling streams and send back to a return point. Storage space or dedicated bins within the units or refuse rooms can be provided.

2.3.2. Infrequent Waste

Table 2.8: Disposal of Infrequently Generated Waste

Refuse Stream	Disposal Details
Garden Organics refuse / Green Waste	Garden organic refuse also referred to as green waste will be produced from landscaped areas or potted plants around this development. Green waste is produced largely on a weather or seasonal dependent basis and based on plant selections. Green waste is usually removed by the designated maintenance contractor. Interim storage is not provided. The engaged contractor will be required to send this material to a composting or resource recovery facility rather than to a landfill.
Hard Waste / Bulky Goods	Hard waste collections will be coordinated in line with BCC's hard waste collection arrangements for residential uses, and hard waste / bulky goods moved to the loading or a designated area for removal prior to collection. When storing bulky goods in a loading area, it is recommended that items are placed on a pallet for efficient loading via a pallet jack or forklift onto the RCV.
Hazardous Waste - Batteries	Batteries are highly volatile and must be disposed of separately and never in the general waste or commingled recycling bins. TTMC recommend a communal disposal point is provided by site management and located in the main lobby or each building or alternate easily accessible location for use by residents.
Hazardous Waste (paints, chemicals) Electronic Waste	It is expected that the building management assist residents with disposal of hazardous or liquid waste and any paint or chemicals as required and requested. Hazardous waste must be handled with due care, separated and securely stored for collection by a specialist waste contractor. Please refer to local and QLD government websites for further information.

2.4. Refuse Storage, Access and Rotation Requirements

All refuse will be stored within bins housed within the dedicated refuse storage area. All refuse storage and servicing areas are provided on Basement Level.

The refuse room, referred to as waste management room on architectural drawings is separated into two sections; a chute discharge room located beneath the termination of the chute penetration and adjoining residential refuse storage room. The chute discharge room will house the chute discharge, compaction and bin rotation equipment as well as the bins required to remain beneath the chute at all times.

The co-located bin storage room provides storage for all remaining residential bins required between collection services and is positioned with access directly adjoining the RCV loading area. Residents will have access to the refuse storage room for the disposal of items not suitable for chute disposal.

Building management / cleaners will be responsible for the rotation of bins beneath the chute discharge to maintain disposal capacity beneath the chute discharge and to the adjoining bin storage room prior to the scheduled collection.

Access to the chute discharge room will be restricted to building management or approved personnel only via the restricted distribution of keys / fobs and signage. A lock-out function will be installed on the chute hopper doors where the chute hopper door cannot be accessed when the chute discharge room doors are opened, which will prevent potential for injury to the building manager / cleaners by falling objects.

Residents will access the bin storage room for the disposal all refuse materials not suitable for chute disposal.

The collecting contractor will access the bin storage room for the retrieval of bins for collections servicing. A large roller shutter is included to provide access to multiple bins at one time without the need to rotate bins.

The refuse storage areas is sized to accommodate all of the bins and equipment required as outlined in Table 2.4 and Table 2.5.

Figure 2.1 overleaf depicts the layout configuration for the residential refuse storage areas.

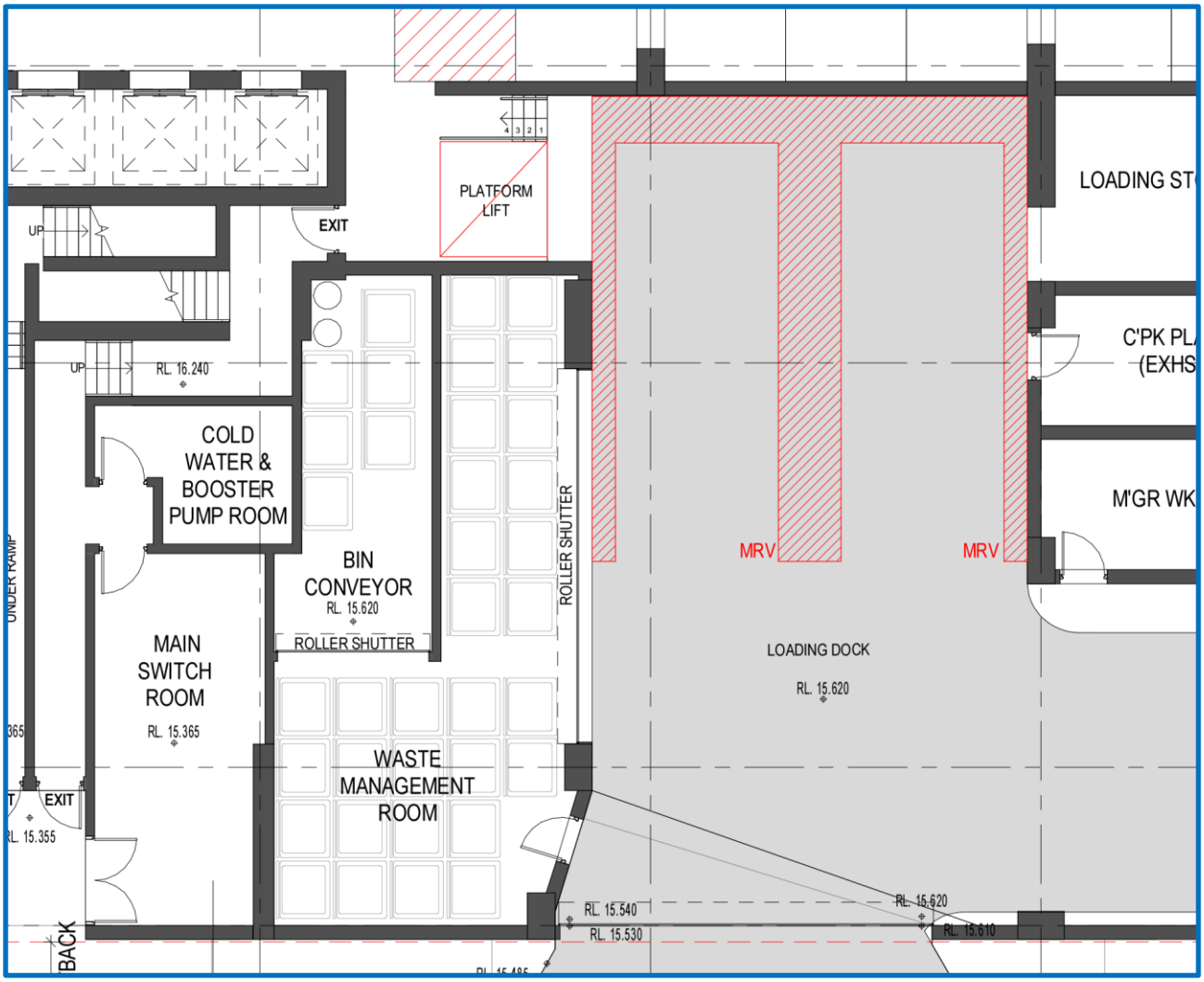

Figure 2.1: Refuse Storage Area Layout

Source: Nettletontribe, Project Address: 10-16 Campbell Street Bowen Hills, Drawing: GA B01 Plan, Issue: 5

Table 2.9 outlines the refuse storage area design criteria addressed in order to minimise odours, deter vermin, protect surrounding areas, and make it a user-friendly and safe area.

Table 2.9: Refuse Storage Area Design Requirements

Positioning Considerations
Positioned in immediate proximity of the designated loading point
Is in a purpose-built storage room which is vermin proofed and used solely for the storage of refuse leaving the site only.
Not located adjacent to or within any habitable portion of a building or place used in connection with food preparation (including food storage).
Is positioned away from entrances to shops or residential premises
Is over 5m from any door, window or fresh air intake within the development or any adjoining site.
Visual Amenity Considerations
Is enclosed on all sides except for the access points to ensure bins are not visible from a public place, neighbouring properties, passing vehicles or pedestrian traffic external to the site.
Is designed to minimise their visual impact on the surrounding areas.
Functional Design Considerations
Is of sufficient size to accommodate the bins with sufficient clearance around the combined bin area
Doors / shutters wide enough to allow for the easy removal of the largest container to be stored.
Permits unobstructed access for removal of the containers to the service point.
The height of the bin storage area allows for waste bins to be opened and closed.
Does not have any steps or lips.
Adequate artificial lighting.
Be fire rated and ventilated in accordance with the National Construction Code – Building Code of Australia.
Bin Washing and Room Cleaning Considerations
A hose cock provided inside the room for cleaning bins and the enclosures.
The walls, ceilings, floors and equipment are to be designed and constructed of impervious material with a smooth finish to allow for easy cleaning.
The floors to be graded to fall to a drainage point.
Drainage points connected to sewer in accordance with trade waste requirements.
Roofed and designed to prevent entry by rainwater.

2.5. Refuse Transfer

Residents will transfer all refuse vertically for disposal via the dual refuse chutes provided. Residents will transfer all refuse materials not suitable for chute disposal to the bin storage room via the lifts. Figure 2.2 depicts the typical dual chute hopper arrangement on residential levels.

Building management / cleaners will transfer bins between the chute discharge room and the residential bin storage room as required.

The collecting contractor will collect all bins directly from the bin storage room, manoeuvre a short distance to the RCV lifting mechanism and return after service. The general area within the loading dock will be utilised for the manoeuvring and rotation of bins during servicing. Bin rotation will not occur within the refuse storage room during servicing.

The refuse transfer path has been designed to allow for:

The bins to be transferred via hard stand pathway.
Allows refuse and bins to be easily manoeuvred.
Does not impede traffic flow.
Does not extend through any habitable parts of a building or food premise
Does not have any lips, stairs or steps for bins to be manoeuvred easily.

Figure 2.2: Typical Dual Chute Hopper Arrangement

Source: Nettletontribe, Project: 10-16 Campbell Street Bowen Hills, Drawing: General Arrangement Typical (odd) Unit Level, Drawing number: 14284-SK12, Issue: 4

2.6. RCV and Bin Servicing Arrangements

All refuse will be collected by rear loading RCV. The site has been designed to be serviceable by Council's appointed collections contractor and if required, Council may be responsible for refuse collection.

Colliers note that Build-to-Rent developments are non-strata titled properties whereby each dwelling or development component, including non-residential uses, exists under a single title. As such are typically considered commercial use properties from a council rating perspective. Where properties are commercially rated, different waste levy rates may be applicable. In these instances, where a property is considered commercial use, private collection contractor is typically available to development operators.

All RCV's enter site in a forward gear via the driveway crossover on the local road and occupy the combined dock area, standing between the 2 MRV bays. Once the collections service is complete, RCV's will perform a single reverse manoeuvre into the manoeuvring area and exit site onto the local road in a forward gear.

All vehicular movements within the shared loading area will be managed by building management under an operational management plan to reduce instances of conflict in movements when vehicles are required to remain on site for periods greater than 15 minutes.

All refuse will be collected directly from the respective refuse room directly adjacent the RCV loading area. The large area provided within the loading dock will be used for the rotation and temporary holding of bins during services. Once the bins have been serviced, they will be returned to the refuse room where building management staff / cleaners will clean the bins as required for everyday use.

Figure 2.3 depicts the swept paths for rear loading RCV as specified in BSD-3008-2. Annotation has been included to clarify the area available for bin rotation and temporary bin holding during servicing.

Further details on vehicle access and on-site manoeuvring can be found in the transport report submitted with the development application submission.

The bin servicing area has been designed with the following features:

Has sufficient access and clearance for the waste and recycling collection vehicles to service the bins, including no overhead obstructions.
Allows bins to be serviced safely while minimising the impediment to vehicle movements during servicing.
Is clearly separated from car parking bays, footpaths and pedestrian access.
Is devoid of stairs, lips or ramps and allows bins to be manoeuvred easily.
Does not block the entry and exit to the property.
Is not adjacent to a kitchen or eating area for public use.
Is over 5m from any door, window or fresh air intake within the development or any adjoining site.
Is screened sufficiently to minimise the view of bins from neighbouring properties or passing vehicles and pedestrian traffic external to the site.
Is positioned away from entrances to shops or residential premises.

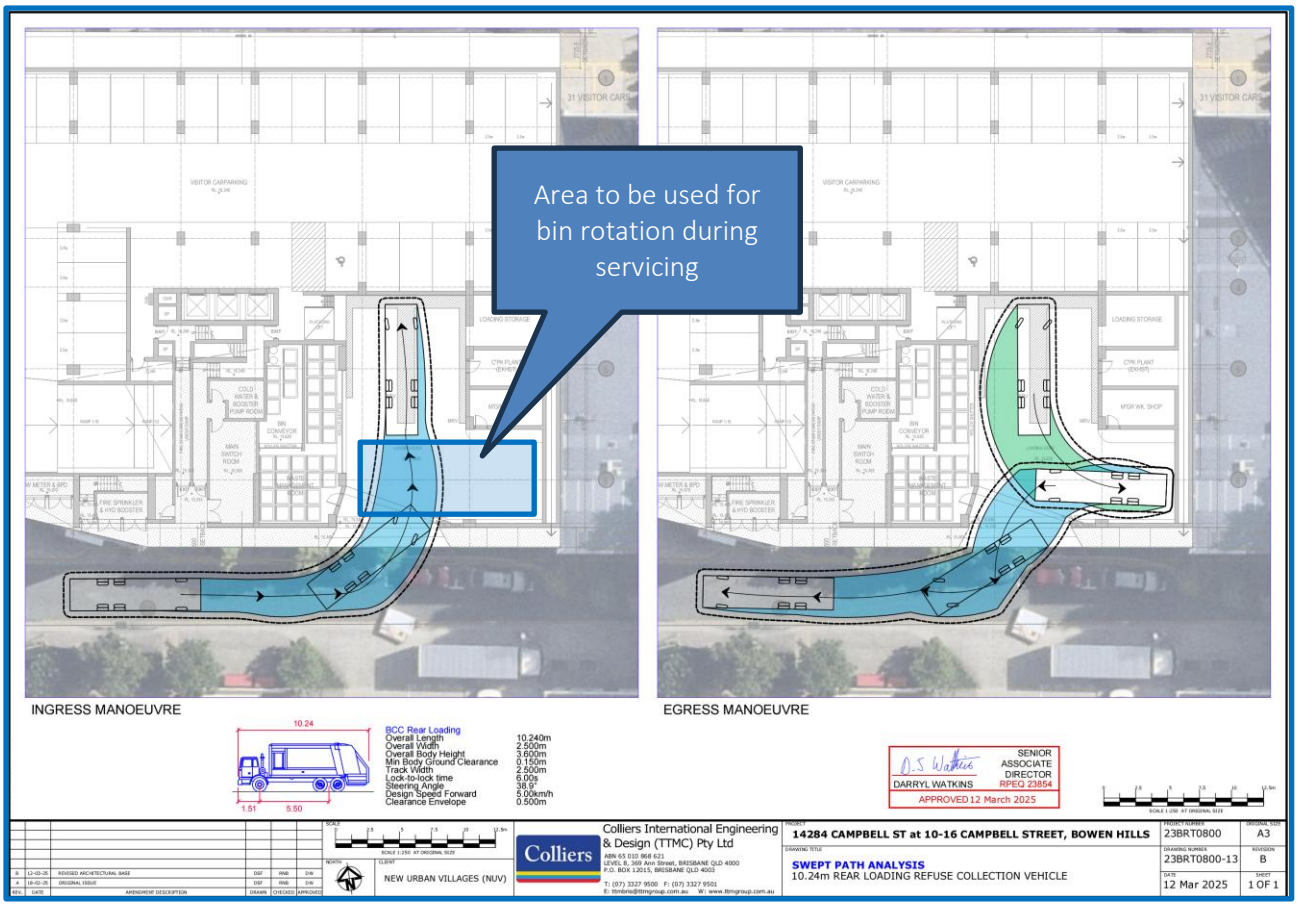

Figure 2.3: RCV Swept Path

3 Recommended Operational Refuse Management

This section does not contain information relevant for regulatory assessment.

This section relates to the outcomes and waste management practices of the development during the operational phase as recommended by Colliers. It is intended for use as a live document by the end user of the development to assist with the ongoing management of the development.

3.1. Anticipated Refuse Volumes

Colliers have worked extensively with operating residential developments within the Brisbane local government area. This includes establishing typical volumes of refuse generated through volumetric assessment. Colliers have established a flat generation rate applicable to developments containing mixed unit sizes. This rate is used to provide more accurate recommendations relating to anticipated bin numbers and building management intervention through bin rotations beneath the refuse chute.

It should be noted that these volumes are based on the maximum aggregate audit results of operational sites completed by Colliers and do not factor in potential demographic or socio-economic factors and therefore not site specific however, give an estimation of likely waste generation. Site specific auditing is recommended to establish actual refuse generation and composition of this site. Site specific auditing allows refinement of the overall refuse strategy.

3.1.1. Refuse Profile and Stream Separation

Refuse generated by multiple dwelling residential apartments includes a substantial volume of food waste. Colliers recommend that food organic waste is separated from the general waste stream. Currently, BCC does not offer food waste recycling to multiple dwelling sites however, onsite compositing or organics processing equipment may be considered. Where onsite composting or processing occurs, this must be undertaken through an onsite manager to ensure the correct use.

Alternatively, commercial collections may be undertaken by the development at an additional cost. BCC do not provide rating concessions to residential developments for initiatives to reduce waste. Where commercial collections are undertaken this is an additional waste expense over BCC's waste rating charge.

Colliers recommend that Container Deposit Scheme (CDS) receptacles are also available for resident use, this may provide additional revenue to the development (such as social club funds) or be donated to charity and used to promote buy-in. Single item recyclable streams as captured by CDS offer a higher value recyclable product than achieved through commingled recycling.

Similarly, consideration should be given to the separation of bulky cardboard. Oversized cardboard is a leading cause of blockages in recycling chutes.

3.1.2. Recommended Refuse Bins and Equipment

Additional services may be provided utilising the refuse storage areas as proposed within the development application. Where additional services are implemented, consideration will be required by building management to ensure a convenient method of disposal is maintained for each stream for residents.

Table 3.1 outlines the number of bins and additional equipment that may be implemented, where an additional level of sustainability and landfill diversion is sought. The recommended level of stream separation may be implemented at any stage during the occupational phase of the site.

These recommendations are provided to assist in the instigation of collection services and provided based on Colliers recommended stream separation for each use within the development. Uptake and individual stream generation may vary based on resident cohort and building management involvement.

Additional services may be provided utilising the refuse storage areas as proposed within the development application. Where additional services are implemented, consideration will be required by building management to ensure a convenient method of disposal is maintained for each stream for residents.

Table 3.1: Recommended Stream Separation and Bin Numbers

Refuse Stream	Bin / Equipment - Type or Size	Bins Required	Storage Capacity Between Collections
General Waste	1,100L	7 + 1 to remain beneath chute during servicing	3 Days
Food Organics	140L	8	2 Days
Commingled Recycling	1,100L	8	3 Days
Paper / Cardboard	1,100L	2	3 Days
CDS	240L	4	7 Days
Mixed Batteries	Countertop Receptacle	1	Ad Hoc

3.2. On-going Management

The tables below relate to a cycle of ongoing implementation, operation, review and amendment of the refuse strategy. These tables are intended to serve as a live document to be completed and updated during the operational phase of the development and therefore intentionally left blank.

Responsibilities have to be assigned for all on-going refuse management related activities during the operation of the development. Colliers recommend the appointment of dedicated personnel to champion refuse management and sustainability. The following lists (Table 3.2 to Table 3.4) are designed to help manage and assign responsibilities and monitor the refuse operations. On-going management of the refuse strategy will maintain efficient services, a safe environment and improve on sustainability outcomes.

3.2.1. Implementation Phase

Refuse management tasks during the implementation of the refuse strategy are required prior to and during the early stages of building occupancy. An opportunity to revisit these tasks is provided at set intervals with the review of the refuse strategy.

Table 3.2: Implementation Checklist

Task	Assigned	Remarks
Verify the as-built form of all refuse related areas. This task does not refer to building certification but is typically undertaken by a specialist waste consultant prior to building certification. This provides an opportunity to identify variances in building form versus design and recommend alternate or mitigating refuse management strategies. This task may also be required during building refits and change of use in tenancies.		
Appoint personnel to oversee or undertake refuse management tasks. A facilities or dock manager is typically appointed undertakes most operational tasks, engaging contractors for specialist tasks.		
Conduct internal safety review. An internal safety review is required to be undertaken to identify potential hazards in the implementation of the refuse strategy and risk mitigation opportunities. This includes the use of any refuse management equipment installed, as well as refuse transfer paths		
Development of policy and procedures Must be undertaken after safety review and abide by all relevant occupational health and safety legislation, regulations and guidelines to ensure site safety for visitors, staff and contractors. Also includes assessment of any manual handling risks and preparation of a manual handling control plan for waste and bin transfers.		

Task	Assigned	Remarks
Engage refuse collection contractors. Either Council's appointed collections contractor or a private contractor (if permitted) must conduct a site visit for the purposes of risk assessing the site prior to conducting services. Contractors must ensure that a full risk assessment of equipment, surfaces and related gradients is complete and procedural documentation is provided to the appropriate personnel. RCV manoeuvrability testing and the establishment of service frequency and timing may also be undertaken at this time.		
Install signage in all refuse disposal and storage points. Signage is required to be installed to educate building occupants on location of disposal and refuse storage points. Additionally, to identify the accepted items disposed of in each refuse. The installed signage should be colour coded in accordance with *AS 4123.7 – 2006 Mobile waste containers*. Examples of signage are provided in the appendices.		
Leasing Agreements All leasing contracts should contain clauses pertaining to waste management arrangements and use of any associated equipment.		
Education and Training. Provision of equipment manuals, induction, training, health and safety procedures, risk assessments and personal protective equipment (PPE) to all staff / contractors associated with all waste management activities in order to control hazards. The step is repeated through the operational phase of the development as required due to changes is users or personnel.		
Consider fit out and move-in refuse. Higher volumes of waste are generated during the initial occupant move-in or final fit out. This typically includes large volumes of cardboard. Additional bins or collections may be required. This also applies to high turnover events, renovation and refits.		
Baseline Refuse Auditing A baseline audit once the development reaches 80% occupancy undertaken by a specialist waste consultant is recommended to identify refuse volumes and stream composition. This information is then used to establish potential recoverable material percentage based on initial waste practices and set recycling rate targets.		

3.2.2. Occupation / Operational Phase

Refuse management tasks during the occupation or operational phase of the development relate to the day to day and business as usual operational tasks that must be undertaken to execute the refuse strategy.

Table 3.3: Occupation / Operation Checklist

Task	Assigned	Remarks
Facilitate disposal from communal areas and public realm. Appointed staff are required to transfer refuse generated in communal areas and the public realm to the refuse storage area for final disposal, this includes litter removal.		
Manage rotations of bins to ensure convenient access. Check bin fill levels and rotate / swap bins as required. Sufficient capacity must be provided for the disposal of all streams at all times including reduced personnel on site (such as weekends or public holidays). Where equal access to a refuse stream is not maintained, other streams may be contaminated leading lost resources.		
Manage bin transfers between storage areas or agreed servicing point. If required, bins are required to be presented to the temporary holding or agreed servicing point prior to the scheduled service time and ensure the area is free from obstruction. Late bin placement or servicing obstruction may lead to missed bin services.		
General cleaning. Regular cleaning and maintenance of all refuse management facilities is important to maintain a safe and hygienic environment for visitors, staff and contractors. General cleaning is required for all refuse holding and transfer areas including • Refuse bins, rooms and storage areas • Refuse transfer areas including lifts and staircases • Any other refuse management equipment		
Perform spot checks on bin contents and refuse streams. Appointed staff regularly check for compliance and stream contamination. Early intervention prevents the development of poor practice and lost resources. Feedback and education is provided to the relevant parties (see below).		
Ongoing education and communication. On-going education is important to ensure people continue to use the facilities as originally intended and to avoid ongoing contamination of recoverable refuse streams. Appointed personnel should be actively involved in education of occupants and encouraging participation in recycling activities. Widespread communication of the achievements of the refuse strategy and areas for improvement encourage participant buy-in.		

3.2.3. Review and Amendment Phase

The review and amendment refuse management tasks relate to tasks undertaken on a routine (e.g. quarterly, bi-annually or annually) or ad hoc basis. At the completion of the review and amendment phase, the cycle restarts with the implementation of the amended refuse strategy.

Table 3.4: Review and Amendment Checklist

Task	Assigned	Remarks
Coordination of specialised cleaning contractors as required. Typical specialised cleaning services may include cleaning internal areas of compaction equipment (if selected); this reduces risk of blockage, odour and risk of fire.		
Maintenance and servicing of refuse management equipment as per schedule. Frequency depends on equipment, building operation and manufacturer specification. Routine maintenance reduces downtime and detrimental impact of unscheduled equipment breakdown.		
Coordination of specialised equipment contractors as required. May extend to ad hoc services requiring specialist equipment such as bulky / hard waste removal.		
Internal safety review. Routine safety reviews are required to identify changes to the site, work practices or legislation that may impact existing policies and procedures. Reviews should include visual inspection of equipment and user PPE. Any policy or procedure updates arising from a safety review must be immediately communicated.		
Audit operational refuse volumes and composition. As similarly undertaken at the beginning of occupancy a review by a specialist waste consultant is recommended to identify refuse volumes and stream composition. This information is then used to establish potential recoverable material percentage and identify opportunities for improvement in refuse strategy. Alternatively, an internal audit may be undertaken by visual inspection during on-site waste management handling activities. For example, cleaners may observe contents of waste receptacles when decanting caddies in larger bins and recording results, this method is less accurate than a comprehensive audit, however, give immediate indicative results and may be undertaken on an ongoing basis.		
Review bin quantities and refuse management equipment. Reviewing bin quantities and equipment is required ensure operational sustainability of refuse volumes and equipment remains fit for purpose. Consideration should be given where alternate equipment may provide improved outcomes. This review may form part of the external audit process (above) as recommendations made.		

Task	Assigned	Remarks
Review service frequency and methodology on 6 monthly intervals with collecting contractor. The service frequency and service methodology should be reviewed to ensure the optimum cost efficiency in services provided and explore options for additional services. Any potential changes to the bin numbers or bin sizes should be made in liaison with the appointed contractor to confirm cost or contract implications.		
Review of recycling rate target to target continual improvement. Once benchmarked performance has been assessed against the existing targeted recycling rate a new target can be established that strives for continual improvement. Any changes in targeted recycling rates and the achievements of the refuse strategy should be widely communicated to all uses.		
Update and amend OWMP based on review outcomes. On completion of the refuse strategy review the OWMP should be updated to reflect refuse strategy amendments and to enable implantation of refuse strategy.		

Appendix A OWMP Compliance Checklist

BCC SC6.26 Refuse Planning Scheme Policy		
Item	Requirement	Compliance / Comment
Section 2 – General Requirements		
(1)	A written design proposal for waste collection is to be provided giving full details of the proposed solution, bin sizes, number of bins and the storage and collection areas, frequency of collection and the refuse collection vehicle size. Table 1 provides the dimensions and types of bins. Table 3 provides the specifications and types of collection vehicles.	Details provided in this OWMP.
(2)	The collection of refuse is to be considered during the planning phase of development. This includes the physical manoeuvring area for the refuse collection vehicle and the bin storage areas and collection points. Access for other road users including pedestrians, cyclists, motorists and other service providers (e.g. postal) is to be maintained.	Considerations provided within this OWMP.
(3)	The type of refuse service that is to be used (domestic or commercial) is identified, including whether the refuse collection vehicle is to be front loading, side loading or rear loading (sufficient height must be available).	Domestic refuse collected by rear loading RCV. 3.6m available.
(4)	Uses with high trip-end densities provide a transport impact assessment report in accordance with the Transport, access, parking and servicing planning scheme policy with an assessment of refuse storage and collection included.	See Transport Engineering documentation for details.
(5)	Where a Refuse Collection Vehicle (RCV) is required to manoeuvre from an on-site position, allow an additional 500mm clearance for vehicle turning dimensions (swept paths) and servicing. Three clear swept path lines must be demonstrated for the RCV, namely wheel path, vehicle body path and 500mm clearance path.	See Transport Engineering documentation for details.
(6)	The waste collection system is to achieve the following outcomes: a. both the customer and service provider can access the bin storage area and collection point conveniently; b. the location, design and operation of the bin storage and collection system do not have unreasonable adverse acoustic, odour or visual impacts on the development, surrounding properties or the streetscape; c. the supply and servicing of either mobile garbage bins or bulk bins or refuse compactors complies with the requirements of this planning scheme policy.	Complies Complies – Collection service will be undertaken wholly on site. Complies
Section 3 - Access and Manoeuvrability		
(1)	The manoeuvring of the refuse collection vehicle is undertaken in a safe and efficient manner, without detrimental impacts to pedestrian amenity or safety, Council or private infrastructure or the function of the road network.	See Transport Engineering documentation for details.
(2)	For multiple dwelling development accessed via a local, neighbourhood, district or suburban road, the refuse collection vehicle may enter the site in a reverse gear in a single movement.	Forward-in, forward- out manoeuvring provided.
(3)	For multiple dwellings development accessed via an arterial road, or where the refuse collection vehicle cannot reverse onto the site in a single movement, the refuse collection vehicle must enter and leave the site in a forward gear.	Forward-in, forward- out manoeuvring provided.
(4)	For development (other than a multiple dwelling) accessed via an arterial, suburban, district or minor road adjacent to an intersection with a major road, the refuse collection vehicle must enter and leave the site in a forward gear.	N/A
(5)	Where refuse collection is from an on-site position, the area trafficked by the refuse collection vehicle must comply with requirements under the Transport, access, parking and servicing planning scheme policy including a minimum aisle/carriageway width of 6.5m wide.	Complies
(6)	For detached dwellings on rear lots, pavements/carriageways trafficked by a refuse collection vehicle have a minimum width of 5.5m.	N/A

Section 3 - Access and Manoeuvrability - Continued		
(7)	All entry and exit points are of a width and design that allows for sufficient ingress and egress for the refuse collection vehicle, including a minimum 6.5m crossover which is free from overhead projections inclusive of gardens or trees.	Complies
(8)	To maximise safety, the distance required for refuse collection vehicles to reverse on-site is minimised. Where on-site turnaround of the refuse vehicle cannot be achieved, the bin storage area and collection point is located within 20m of the street frontage.	Complies – Minimal reversing required.
(9)	Turnaround facilities for a refuse collection vehicle exist or are provided for where involving staged subdivision developments or where development is located on a no through road. Turning and manoeuvring facilities for refuse collection vehicles are provided to meet design requirements for the vehicles identified in Table 3.	N/A
(10)	Subdivision layouts are to provide for the safe and efficient operation and manoeuvring of a side-lift loading refuse collection vehicle. Layouts that require a refuse collection vehicle to reverse more than 20m are to be avoided. Where the provided transport network results in a stub road for a proposed future road connection, interim turnaround facilities must be provided in compliance with the Transport, access, parking and servicing planning scheme policy and the Infrastructure design planning scheme policy.	N/A
(11)	Adequate lift clearances are provided to overhanging trees and wires in accordance with Table 3.	Complies – over 3.6m provided
(12)	The required vertical and horizontal clearances are provided for the service to operate safely and efficiently. Operational clearance dimensions are shown in Table 3 for various types of collection arrangements.	Complies
(13)	Access for a refuse collection vehicle to the collection point is maintained at all times.	Servicing occurs in shared loading bay.
(14)	Where non-residential development is proposing to use an alternative design vehicle other than those named in Table 3, written confirmation from the proposed licensed waste collection contractor giving full details of the bin size and the refuse collection vehicle size must be provided.	N/A
(15)	In instances where the gradient of the on-site manoeuvring area is greater than 5% (1:20), the pad that the collection vehicle will stand on while accessing refuse bins at the collection point, is to have a maximum gradient of 2% (1:50).	Complies – RCV will stand on a flat grade for servicing.
Section 4 - Residential Refuse Collection		
(1)	Residential development must be serviced by Council or their appointed collection contractor.	Complies
(2)	Residential development is to provide sufficient capacity for 240L of refuse and 240 or 360L of recycling per dwelling, allowing for one collection per week.	Servicing 3 times per week is proposed.
(3)	Residential development is to utilise kerbside collection where the locations for both the bin storage area and kerbside collection point can be appropriately accommodated in accordance with section 4.1.	Greater than 10 dwellings kerbside collection not proposed.
(4)	On-site collection must be provided for in the following cases: a. the development cannot accommodate external (fronting public road) kerbside collection; or b. the development comprises greater than 10 dwellings; or c. where the road verge is not properly shaped to the standard 1:50 gradient and a minimum of 2.5m wide or where the longitudinal road gradient is greater than 1:10.	Complies
(5)	Refuse and recycling collection for a mixed use development ensures residential and commercial bins are stored separately with separate access to each.	Complies
Section 4.1 - Kerbside Collection (MGB's) – N/A Greater than 10 dwellings, kerbside collection not proposed		

Section 4.2 – On-site Collection (Bulk Bins) – This section applies to Residential services		
(1)	In accordance with section 4, development will avoid adverse impacts to residents, pedestrians and roads users by providing sufficient capacity to achieve one collection per week while ensuring sufficient refuse and recycling capacity is provided to meet the needs of residents.	Complies
(2)	An on-site dedicated pedestrian route is provided and is separate from the required vehicle manoeuvring area to ensure pedestrian safety is protected. The pedestrian route is to provide access from the site's frontage to the development and will have a minimum width of 1.2m.	Complies
(3)	Bulk bins of 1.1m^3 or less are positioned so that collection personnel do not have to move them more than 5m. If a gradient is evident, speed bumps are provided to stop bulk bins from rolling away from the collection point.	Refuse storage immediately adjoins servicing area.
(4)	Bulk bins of 1.5m^3 or more are positioned so that front-lift refuse vehicles can drive directly to the container without relocating the bulk bin. If this cannot be achieved due to physical constraints, then the bulk bins are not moved more than 3m from the storage area to the collection point.	N/A – 1.1m^3 bins proposed.
(5)	The storage areas for bulk bins are: a. contained in a roofed and wholly screened enclosure or room of sufficient size for the bulk bin quantity required; b. easily accessible for residents and for the required servicing of bins; c. screened from neighbouring properties to mitigate odour, amenity and noise; d. of a design to mitigate the harbourage of vermin or attraction of scavenging animals; e. provided with natural or temperature-controlled ventilation if in an enclosed room; f. of a design which maintains a minimum internal vertical clearance of 2.1m; g. kept clear of obstructions, such as fixed bay separators, that impede the ability to change from existing bin sizes or which otherwise limit future refuse collection options; h. are not to contain other amenities such as air-conditioning compressors, hot water systems or electrical hubs.	Complies
(6)	Best practice may include allowing additional space for the storage of extra containers to separately store either organic waste or other recyclables in the future.	Adequate space for anticipated volumes provided.
(7)	If a refuse or recycling chute is provided: a. it is to be constructed to allow refuse to fall into the centre of the bin; b. it is to have a door / lid to ensure clean changeover of bins; c. the chute room must be of suitable size to allow for an additional bin/s to remain under the chute discharge/s at all times; d. separate chutes and bulk bins are to be used for each waste stream; e. the room containing the chute and bin or compactor excludes all but authorised personnel; f. design best practice may include developments greater than 15m (3 storeys) in height utilising twin chutes or single chute dual stream technology with openings on each residential floor to enable chute disposal of both refuse and recycling.	Complies
(8)	Environmental best practices may also include the installation of a trapped waste connection to the sewer system.	Complies

Appendix B Site Plans and Swept Path Analysis

REFER TO SK05 FOR CONTINUATION OF ACTIVATED STREET EDGES/ PLANTER CONFIGURATION
PROPOSED VERGE SETBACK
H
G
F
E1
D
C
B
A
8700
8400
5800
8400
8400
7100
EXISTING BOUNDARY LINE
VERGE SETBACK
3750
2725.6 SETBACK
31 VISITOR CARS
VISITOR CARPARKING
RL. 16.240
25# BIKE STORES
EXISTING BOUNDARY LINE
PLANTER ADDRESSING ROAD FRONTAGE
PERMEABLE FACADE DETAIL - CARPARK VENTILATION - QUANTUM TBA
PLANTER
HURWORTH STREET
VISITOR BIKE PARKING
10 BIKE SPACES MIN.
BALCONY TO CORNER ABOVE
RAMP 1:20
ZONE TO ACCOMODATE BOUNDARY RETENTION + PODIUM STRUCTURE
CWR
SP
EXIT
CLNR
PLATFORM LIFT
LOADING STORAGE
C'PK PLANT (EXHST)
M'GR WK. SHOP
COLD WATER & BOOSTER PUMP ROOM
MAIN SWITCH ROOM
BIN CONVEYOR
ROLLER SHUTTER
WASTE MANAGEMENT ROOM
LOADING DOCK
RL. 15.620
MRV
FIRE STAIR EGRESS PATHS UNDER RAMP
PARKING ENTRANCE OFF HURWORTH STREET
RAMP 1:39
RAMP 1:10
RAMP 1:5
CW METER & BPD
FIRE SPRINKLER & HYD BOOSTER
RIGHT OF WAY SETBACK LINE
EXISTING BOUNDARY LINE AT CORNER/ GRID A
EXISTING BATTERED BANK
STORMWATER PIT & OVERFLOW
ROAD VERGE NEAREST POINT SETBACK
TRUCK LOADING ENTRY OFF LANEWAY
3750
VERGE SETBACK
2500 VERGE SETBACK
1560
8700
10200
E2

Issue	Description	Date
5	Pre-DA Review issue	2025.02.21
4	Pre-DA Consultant issue	2025.02.06
3	Footpath RL Development / Civil issue	2025.01.08
2	Design coordination issue	2024.12.05
1	Pre-lodgment preliminary design issue	2024.11.05

Client

Builder

Project Name
14284 CAMPBELL ST

Project Address
10-16 Campbell Street, Bowen Hills

Key Plan

Drawing Title:
GA B01 PLAN

Author: CL
Checker: JW
Sheet Size: A1
Scale: 1:100

Drawing Number: **14284_SK05**
Issue: **5**

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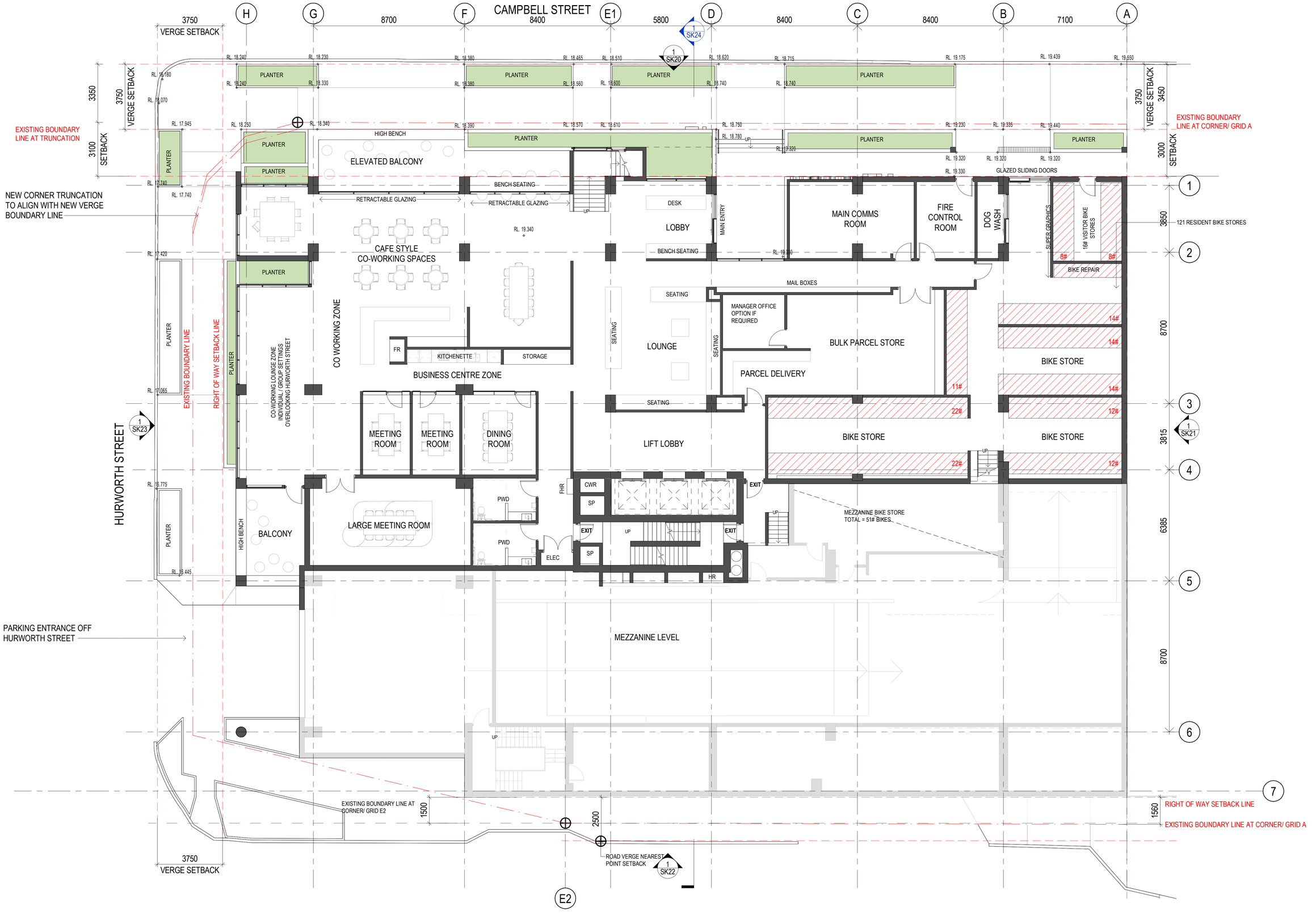

Client

Builder

Issue	Description	Date
5	Pre-DA Review issue	2025.02.21
4	Pre-DA Consultant issue	2025.02.06
3	Footpath RL Development / Civil issue	2025.01.08
2	Design coordination issue	2024.12.05
1	Pre-lodgment preliminary design issue	2024.11.05

Project Name
14284 CAMPBELL ST

Project Address
10-16 Campbell Street, Bowen Hills

Key Plan
0 2000 5000

Drawing Title:
GA L00 PLAN

Author:	Checker:	Sheet Size:	Scale:
CL	JW	A1	1:100

Drawing Number: **14284_SK06**

Issue: **5**

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21/02/2025 12:11:07 PM Autodesk Docs://14284 10-16 CAMPBELL ST BYL/14284_CAMPBELL ST BYL_AB_ARCH.rvt

Client

CFMEU QLD/NT

Issue	Description	Date
4	Pre-DA Review issue	2025.02.21
3	Pre-DA Consultant issue	2025.02.06
2	Design coordination issue	2024.12.05
1	Pre-lodgment preliminary design issue	2024.11.05

Builder

Project Name
14284 CAMPBELL ST

Project Address
10-16 Campbell Street, Bowen Hills

Key Plan
0 2000 5000

Drawing Title:
TYPICAL (ODD) UNIT LEVEL(5,7,9,1,13,15,17,19,21,23,25) GA PLAN

Author:	Checker:	Sheet Size:	Scale:
CL	JW	A1	1:100

Drawing Number: **14284_SK12**

Issue: **4**

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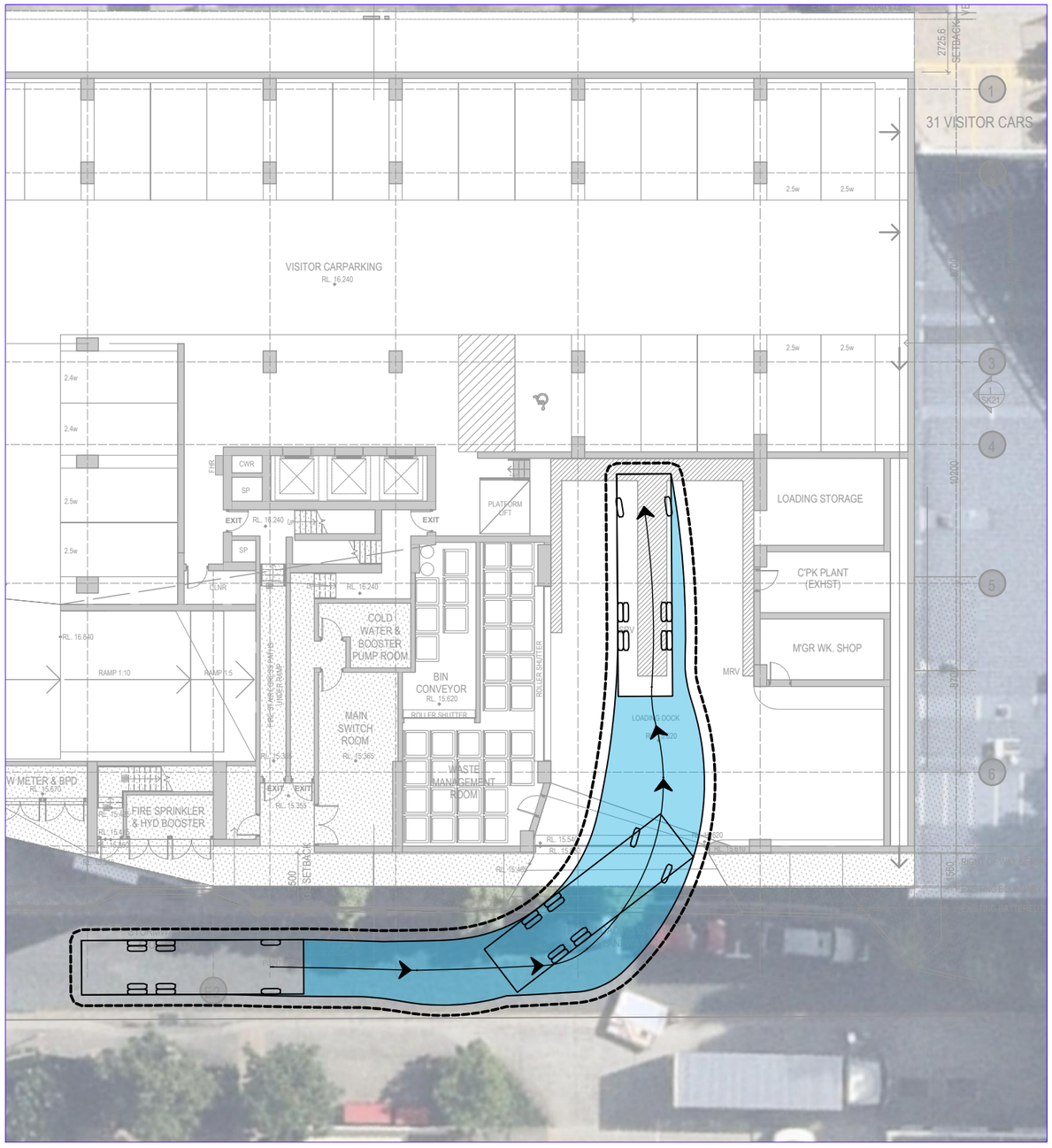
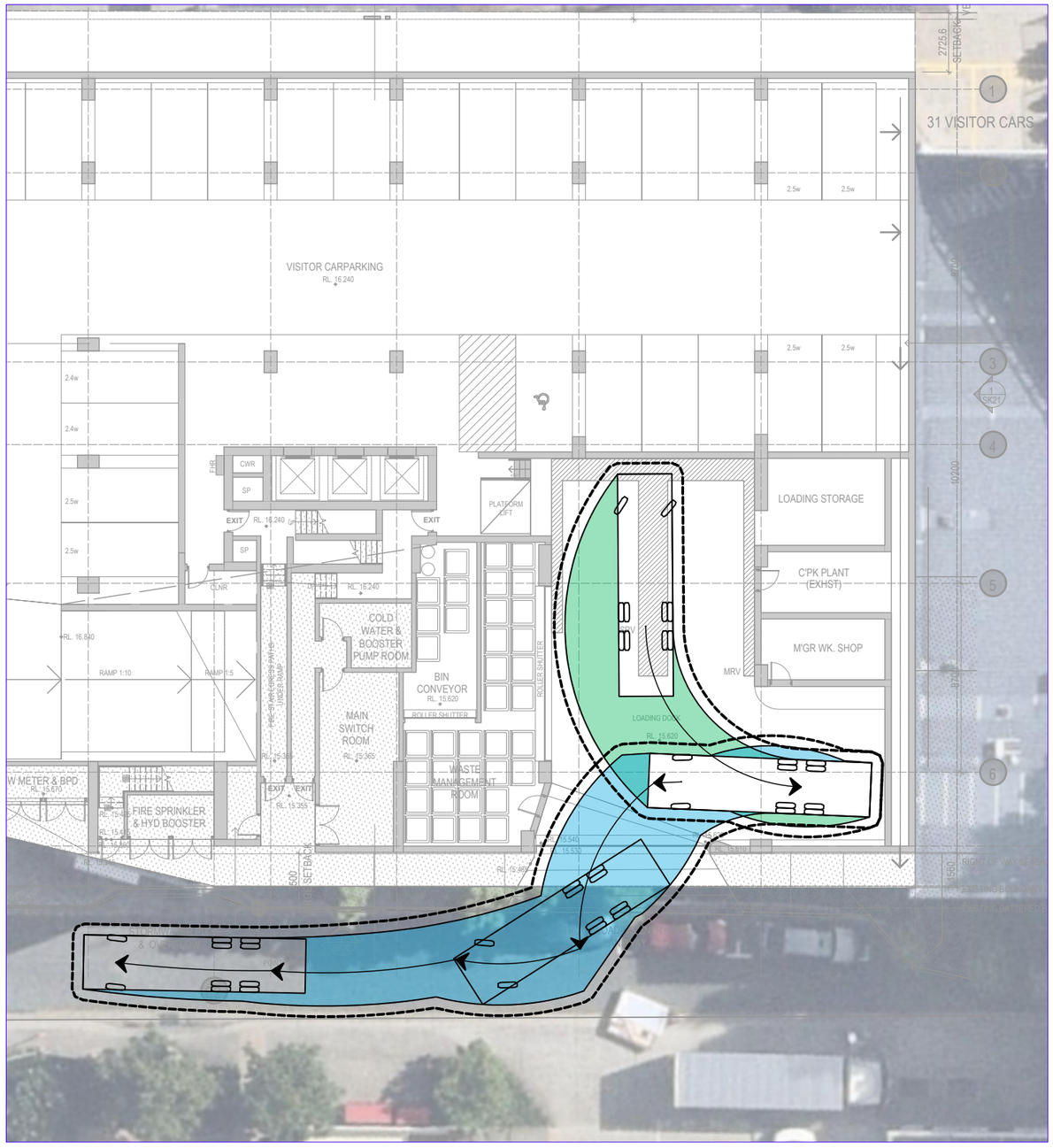
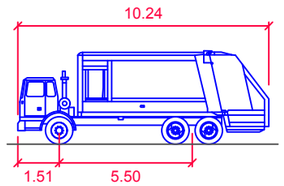


INGRESS MANOEUVRE



EGRESS MANOEUVRE



BCC Rear Loading	
Overall Length	10.240m
Overall Width	2.500m
Overall Body Height	3.600m
Min Body Ground Clearance	0.150m
Track Width	2.500m
Lock-to-lock time	6.00s
Steering Angle	38.9°
Design Speed Forward	5.00km/h
Clearance Envelope	0.500m

D.S Watkins
SENIOR ASSOCIATE DIRECTOR
DARRYL WATKINS RPEQ 23854
APPROVED 12 March 2025

0 2.5 5 7.5 10 12.5m
SCALE 1:250 AT ORIGINAL SIZE

REV.	DATE	AMENDMENT DESCRIPTION	DRAWN	CHECKED	APPROVED
B	12-03-25	REVISED ARCHITECTURAL BASE	DSF	RNB	DW
A	18-02-25	ORIGINAL ISSUE	DSF	RNB	DW

SCALE 0 2.5 5 7.5 10 12.5m
SCALE 1:250 AT ORIGINAL SIZE
NORTH
CLIENT: NEW URBAN VILLAGES (NUV)

Colliers International Engineering & Design (TTMC) Pty Ltd
ABN 65 010 868 621
LEVEL 8, 369 Ann Street, BRISBANE QLD 4000
P.O. BOX 12015, BRISBANE QLD 4003
T: (07) 3327 9500 F: (07) 3327 9501
E: ttmbris@ttmgroup.com.au W: www.ttmgroup.com.au

PROJECT: **14284 CAMPBELL ST at 10-16 CAMPBELL STREET, BOWEN HILLS**

DRAWING TITLE: **SWEPT PATH ANALYSIS**
10.24m REAR LOADING REFUSE COLLECTION VEHICLE

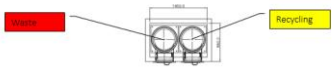
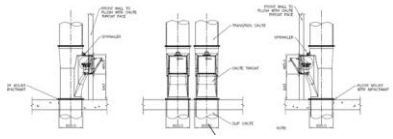
PROJECT NUMBER	ORIGINAL SIZE
23BRT0800	A3
DRAWING NUMBER	REVISION
23BRT0800-13	B
DATE	SHEET
12 Mar 2025	1 OF 1

23BRT0800-F07 V00 EXTRA LOT CONCEPT.DWG

Appendix C Systems and Specifications

C.1 Specified Refuse Management Equipment

The table below provides contextual examples of the specific equipment types specified in this OWMP and is not intended to provide an exhaustive list of all potential options of the required equipment.

Bin Types	Waste Streams	Examples	Information
Residential unit bins	General waste and recycling		Various options and sizes. Built and standalone bin available. Examples: https://www.bunnings.com.au
Communal area bins	General waste, recycling, food waste, paper / cardboard		Various options and sizes available. To be supplied depending on preference and space available. Examples: https://www.sourceseparation-systems.com.au-/product/multisort https://methodrecycling.com/au/
1100L bins	General waste, recycling, paper / cardboard		Dimensions approx. 1070 x 1240 x 1330mm (L x W x H) (dimensions depend on contractor) Examples: http://www.justwheeliebins.com.au, https://www.australianwastemanagement.com.au
Dual Refuse Chute System	General waste, recycling, food waste	  	Refuse disposal in multi-storey buildings through refuse chutes options include: single chute for waste only, or single chute with diverter system or dual chute for disposal of waste and recycling Examples: https://www.wastech.com.au/products/chutes https://www.elephantsfoot.com.au/products/chutes
Chute Discharge Compaction	General waste	 	Compactors designed for integration with the refuse chute to minimise the volume of general waste. Examples: https://www.elephantsfoot.com.au/products/compactors/carousel-linear https://wastech.com.au

Bin Types	Waste Streams	Examples	Information
Linear Bin Rotation	General waste, recycling, food waste		Automated bin rotation (e.g. linear or carousel) to manage bin fill level and prevent overflow under chutes Example: https://www.elephantsfoot.com.au/products/compactors/carousel-linear https://wastech.com.au
Organics Household Composting, Worm Farm, Digesters (Optional)	Food waste / organics		Organics / food waste separation, composting and digesting; household-type and commercial grade equipment available. Examples Ecoguardians Soilfood https://www.ecoguardians.com.au/soilfood-/soilfood Urban Composter https://www.urbancomposter.com.au Worm Farm https://wormsdownunder.com.au/products-/wormmod
Counter-top E-Waste Recycling (Optional)	Electronic Waste		Prepaid battery collection Example: https://envirostream.com.au/product/prepaid-countertop-battery-recycling-box/ https://www.ecoactiv.com.au/product/4l-battery-recycling-prepaid-service/ Toner cartridge collection https://zerowasteboxes.terracycle.com.au-/products/ink-and-toner-catridges-zero-waste-boxes
Refuse / Cleaners Trolleys (Optional)	All Streams		Assisted manual transfer of refuse Examples: https://rubbermaidcommercial.com.au/products/waste-management/mega-brute https://www.materialshandling.com.au/products/deluxe-compact-cleaning-carts

Appendix D Refuse Signage

D.1 Refuse Signage

Waste signage guideline are provided by the Queensland government: https://www.qld.gov.au/environment/pollution/management/waste/recovery/recycling/signage.

General Refuse Signage

Other Refuse Signage

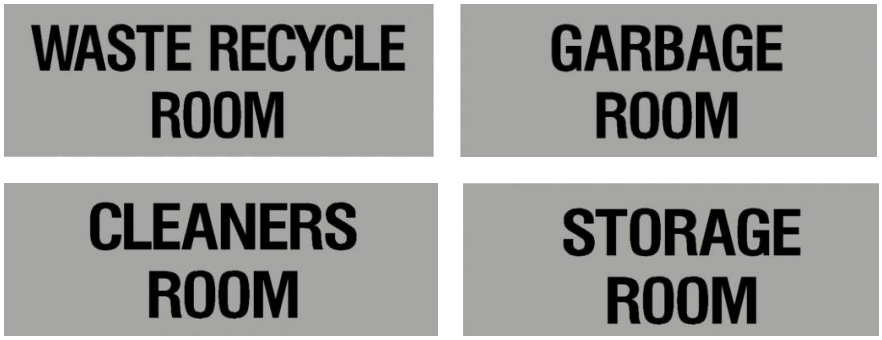
Colour coding as per AS 4123.7-2006

Mixed (Commingled) Recycling	*PMS 108*
General waste (landfill)	*PMS 032C*
Organics	*PMS 15-0343*
Paper and cardboard recycling	*PMS Process Blue C*
Soft Plastics	*PMS 1655*
Used Cooking Oil	*Grey*

D.2 Other Refuse, Facility and Safety Signage

Various signage including refuse area, safety and facility signage should be arranged through certified signage providers. Example signs can be found at http://www.signblitz.com.au, https://www.wayout.com.au or https://www.smartsign.com.

Example Refuse Room Signage



Example Facility Signage

Example Safety Signage

Appendix E Terms and Abbreviations

In this OWMP, a term or abbreviation has the following meaning unless indicated otherwise:

TERM	ABBREVIATION	DEFINITION
Equipment		
Bin (Refuse Bin)		A plastic or steel container for disposal and temporary storage of waste or recycling items. Various types and sizes exist for different items and purposes. Examples include residential unit bins, bulk bins, MGB, steely bins and specialised for medical waste or cigarette butts.
Bin Storage Area		An enclosed area designated for storing on-site refuse bins or a refuse compactor within the property.
Bulk Bin		A galvanized or steel bin receptacle that is greater than 360L in capacity generally ranging from 1.00m³ to 4.50m³ used for the storage of refuse that is used for on-site refuse collection.
Bulk Mobile Garbage Bin	Bulk MGB	A plastic (polypropylene) receptacle that is greater than 360L in capacity generally ranging from 660L to 1100L used for the storage of refuse.
Collection Point		An identified position where refuse bins are stored for collection and emptying. The collection point can also be the bin storage area.
Compactor		A receptacle that provides for the mechanical compaction and temporary storage of refuse. It allows to reduce bin numbers and collection frequency.
Composter		A container or machine used for composting specific food scraps and/or organic materials.
Food Waste Recycling System		Defined as a vacuum or pump-based system for shredding, macerating or pulping of food waste. The food waste is transferred through pressure (service) pipes to sealed liquid storage tanks.
Green Waste		All vegetated organic material such as small branches, leaves and grass clippings, tree and shrub pruning, plants and flowers.
Liquid Waste		Non-hazardous liquid waste generated by commercial premises should be connected to sewer or collected for treatment and disposal by a liquid waste contractor (including grease trap waste).
Mobile Garbage Bin	MGB	A plastic (polypropylene) bin or bins used for the temporary storage of refuse that is up to 360L in capacity and may be used in kerbside refuse collection or on-site collection.
Putrescible Waste		Putrescible waste is the component of the waste stream liable to become putrid and usually breaks down in a landfill to create landfill gases and leachate. Typically applies to food, animal and organic products.
Recycling		Recycling contains all material suitable for re-manufacture or re-use, e.g. glass bottles and jars; plastics such as PET, HDPE and PVC; aluminium aerosol and steel cans and lids; milk and juice cartons; soft drink, milk and shampoo containers; paper, cardboard, junk mail, newspapers and magazines.
Refuse		Refuse is material generated and discarded from residential and commercial buildings including general waste, recyclables, green waste and bulky items.
Refuse Storage Room		An area identified for storing on-site MGBs or Bulk Bins within the property.
Refuse Tolley		A cart on wheels that can be used to collect smaller quantities of refuse from different areas or rooms of a building or site, and wheel the collected refuse to a (bulk) bin storage area where it is disposed. Refuse trolleys are commonly used in hotels or offices.
Regulated Waste		Regulated waste is waste prescribed under legislation as regulated waste.

TERM	ABBREVIATION	DEFINITION
Transfer (Manual Transfer)		Manual transfer means physical transfer of refuse material and associated bulk bins or trolleys without assistance.
Waste		Waste is referred to as refuse material with the exclusion of recycling, green waste, hazardous waste, special waste, liquid waste and restricted solid waste.
Waste (General Waste)		General waste is generally referred to as material free of any actual or apparent contamination such as pathological / infectious, radioactive materials and / or hazardous chemical. Reporting use is for material considered to be free of food waste.
Wheelie Bin		A MGB of up to 360L, usually with 2 wheels for easy transfer. A common type is a 240L wheelie bin used for kerbside collection in many residential areas.
Measures		
Cubic Metre	m^3	Volume in cubic metre(s) related to refuse management equipment.
Ground Floor Area	GFA	The GFA of all storeys of a building is measured from the outside of the external walls or the centre of a common wall. It is commonly measured in square metres.
Kilogram	kg	Kilogram(s) related to refuse weight.
Litre	L	Litre(s) related to refuse volumes.
Square Metre	m^2	Square metre(s) related to refuse areas.
Ton	T	Ton(s) related to refuse weight.
Collection Vehicles		
Body Truck		A conventional heavy vehicle with a covered loading area. It is generally not specifically designed for emptying the content of bins into the truck during refuse collections, but can be used to carry entire (full) bins for servicing by bin swap-over.
Refuse Collection Vehicle	RCV	A vehicle specifically designed for collecting and emptying refuse bins and refuse compactors.
Rear-End-Loading Refuse Collection Vehicle	REL RCV	A truck specially designed to collect municipal solid waste and recycling, typically 240L wheelie bins to 1100L bulk bins, from rear loading mechanism and haul the collected waste to a solid waste treatment facility.
Tank Truck		An RCV that is specifically designed to collect liquid wastes such as waste cooking oil and food waste pulp. The waste is typically pumped from a waste storage tank into the truck via a hose. Liquid waste management equipment is often provided by the contractor who collects the waste and operates the truck.